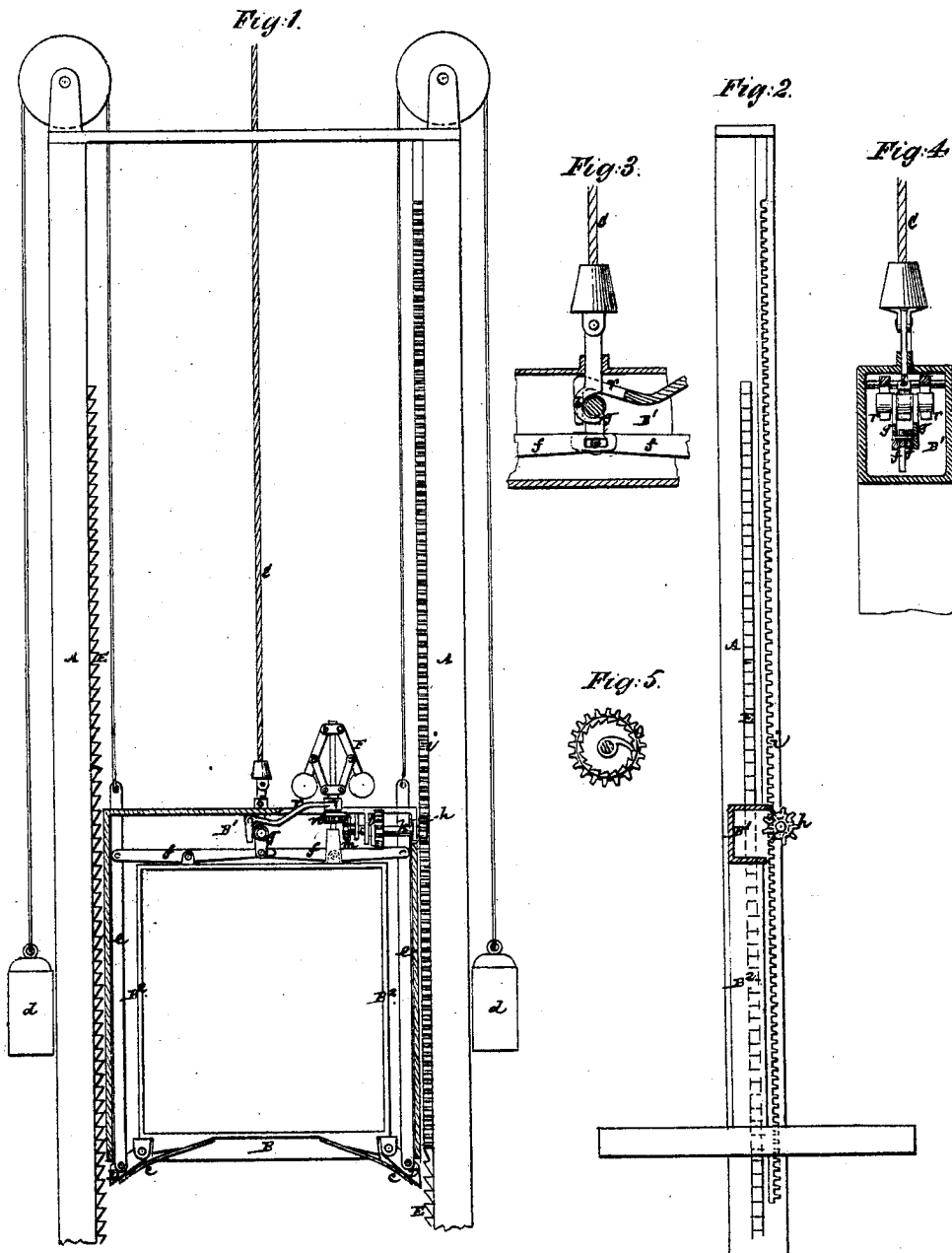


THEODORE TERRELL.

Improvement in Hoisting Apparatus.

No. 121,910.

Patented Dec. 12, 1871.



Scale for Figs. 1 & 2.

Scale for Figs. 3, 4 & 5.

Witnesses:
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UNITED STATES PATENT OFFICE

THEODORE TERRELL, OF YONKERS, NEW YORK.

IMPROVEMENT IN HOISTING APPARATUS.

Specification forming part of Letters Patent No. 121,910, dated December 12, 1871

To all whom it may concern:

Be it known that I, THEODORE TERRELL, of Yonkers, in the county of Westchester and State of New York, have invented a new and useful Improvement in Hoisting Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 represents a partly sectional side elevation of a hoisting-apparatus constructed in accordance with my improvement; Fig. 2, an exterior view, seen at right angles to Fig. 1, of one of the uprights or posts of the hoist-way, showing devices by which a governor carried by the platform may be operated; Figs. 3 and 4 are sectional views at right angles to each other, upon a larger scale, of the devices by which the governor trips the lifting-rope; and Fig. 5 is a face view of a clutch, whereby the governor is only operated during the descent of the platform.

Similar letters of reference indicate corresponding parts throughout the several figures of the drawing.

My invention consists in a combination, with the platform or car, of stops, pawls, or clutches, operated either by springs or weights, or both, for arresting the platform in case of the breakage or derangement of the lifting-rope, when said stops, pawls, or clutches, which bite into or onto racks, rails, or devices up the sides of the hoist-way, as in other hoisting apparatus, are arranged in the lower portion of the platform or below its base, whereby, in case of the separation of the head of the platform or its breakage, or rupture of the uprights connecting the head with the base, said stops, pawls, or clutches operate to hold the platform or its base, which, under like conditions, they necessarily fail to do when arranged in the head or upper portion of the uprights of the platform. My invention also consists in a novel combination of a governor and tripping mechanism, carried by the platform for tripping the lifting-rope if dragging when broken, and so allowing of the stops, pawls, or clutches arresting the platform, said governor preferably only being operated during the descent of the platform.

Referring to the accompanying drawing, A A represent the posts or uprights of the hoist-way, up and down within which the platform is guided

in its travel. B is the base of the platform; B¹, its head; and B² B², its uprights. C is the lifting-rope, provided with a hook, b, at its lower end for connection with the platform by or through the intervention of stop mechanism or safety devices, that, in case of the lifting-rope breaking or becoming deranged, arrest the platform in its descent; but which are held out of action by the lifting-rope when the latter is not ruptured and is working perfectly. Stops, pawls, or clutches operating on or in racks or rails of the hoist-way, may be used for such purpose, as in other hoisting apparatus, and the same be controlled or thrown into action either by springs or weights, or both. In the drawing, pawls controlled both by springs and weights are shown. It is an important feature, however, of the combination shown in the drawing that said pawls D D are arranged in or under the base B of the platform, so that in case of the head B¹ becoming broken or separated or uprights B² B² breaking, as not unfrequently occurs, said pawls will as effectually operate to hold the base where the load is as if there had been no such breakage, and whereby the platform or its uprights and head may be constructed lighter than is usually regarded necessary. The pawls D D are shown as controlled by springs c c and weights d d, the latter operating by means of ropes or chains and pulleys to lift on rods e e connected with the pawls below and with levers f f above. These levers f f, which work on fulcrums intermediate of their length, are connected at their inner ends by a loose or swinging link g with the hook b of the lifting-rope. E E are the ratchets or racks into which the pawls D D, when liberated, bite to arrest the platform. So long as there is no interruption to the proper suspension of the platform by the lifting-rope the pawls D D are held out of gear with said racks; but, in case of breakage or derangement of the rope, then the springs c c and weights d d throw the pawls into lock with the racks, as readily understood by those acquainted with other hoisting apparatus carrying stop or safety mechanism. F is a governor, carried by the platform and set in motion during the travel or descent of the platform by any suitable mechanism; as, for instance, by a pinion, h, working in a rack, i, on one of the fixed uprights A, said pinion setting in motion a shaft, k, that has its bearings in the platform, and which

may either be connected directly with the bevel-gear *m n* that actuates the governor, or indirectly as by intermediate gear for speeding up the governor. In either case, however, it is desirable that while the pinion *h* is rotated in both the up and down travel of the platform, motion should only be communicated to the governor during the descent of the platform, as it is only during such latter travel that the governor requires to be called into action. This may be done by arranging on the shaft *k* a ratchet or other clutch, *o*, which will cause motion to be conveyed to the governor only during the rotation of the pinion *h* in its one direction—that is, as the platform descends. The object of this governor *F* is to trip the lifting-rope in case of the latter dragging, as is not unlikely to happen when said rope breaks at or near the hoisting-drum and when it is of considerable length. Any dragging of the rope under these circumstances interferes with or prevents the action of the safety-stops or pawls. To obviate this the governor *F*, if commencing to run at a more than ordinary speed in the descent of the platform, immediately lifts on a lever, *r*, which trips the link *g* from off the hook *b*, and so clears the platform of connection with the lifting-rope.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The combination, with the car or traveling platform, of pawls or stops controlled by springs or weights, or both, when said stops are arranged in the base of said platform substantially as specified.

2. The combination of the pawls *D D* and springs *e e* or weights *d d*, or both, with the rods *e e* and levers *f f*, with which the lifting-rope *C* connects, when said devices are arranged in relation with the base *B* and head *B'* of the car or traveling platform, essentially as described.

3. The combination, substantially as herein described, with the car or traveling-platform of a hoisting apparatus, of a governor attached to and carried by said car or platform, and deriving motion through the descent thereof, and a tripping device forming a connection between the hoisting-rope and the stop mechanism applied to the car or platform, said governor operating, as herein set forth, on said tripping device to release the stop mechanism from the rope.

4. The combination of the governor *F* and its lever *r* with the link *g*, the lifting-rope hook *b*, the levers *f f*, the rods *e e*, and the pawls *D D*, substantially as specified.

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Witnesses:

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(49)